

REMARKS/ARGUMENTS

The above amendments have been provided based on the format described at 1265 Off. Gaz. Pat. Office 87 (December 17, 2002) and as authorized by Deputy Commissioner for Patents, Stephen Kunin on January 31, 2003.

Dependent claim 30 has been canceled and re-presented as new independent claim 42. It remains directed to the same scope as previous claim 30. Support for the amendment is found in the claim as originally presented, and no change of claim scope is intended or has occurred.

No new matter has been introduced, and entry of the amendment is respectfully requested.

Telephonic interview

Applicants thank Examiner Kishore for the courtesy of a telephonic interview on May 22, 2003. Applicants position based upon *In re Johnson* was discussed along with possible amendments to the claims to address issues under 35 USC § 112. The disclosures in the prior art of record were discussed, and the undersigned noted that a response based at least in part upon the interview would be forthcoming for consideration by Examiner Kishore. The undersigned also sent a copy of *In re Johnson* (558 F.2d 1008, 1019, 194 USPQ 187, 196 (CCPA 1977)) to Examiner Kishore following the interview. A copy of the decision is also attached to this response.

Rejections under 35 U.S.C. § 112

Claims 21, 23-36, 39 and 41 have been rejected under 35 U.S.C. § 112, first paragraph as allegedly containing subject matter not described in the specification and thus containing new matter. The rejection is directed toward the negative provisos in claims 21, 30 (now claim 42), 32, and 41.

As discussed during the interview, Applicants believe that adequate support for the negative provisos is found in a combination of the standard set forth by *In re Johnson* (copy attached), as

explained at MPEP 2173.05(i), and the specification at least on page 28, which discusses embodiments of the invention being comprised of at least egg phosphatidylglycerol (as recited in claims 21, 32, and 41), palmitoyloleoylphosphatidylglycerol (POPG), dioleoylphosphatidylglycerol (DOPG), and dipalmitoylphosphatidylcholine (DPPC).

With respect to the comment by Examiner Kishore that egg phosphatidylglycerol (EPG) is disclosed as a “preferred embodiment” that is now being carved out by a negative proviso, Applicants respectfully submit that EPG is “preferred” for its ability to function as described in the practice of the claimed invention, and the guidance from *Johnson* does not preclude the exclusion of a “preferred” embodiment.

Moreover, EPG is not necessarily “preferred” for certain commercial applications of the invention where the nature of the “egg” source of EPG increasingly poses health and safety concerns due to possible contamination with biological agents found in eggs and the poultry industry. These concerns also apply to egg phospholipids in general, which was excluded from the scope of previous claim 30, now claim 42. As previously noted, support for the application of *Johnson* to exclude egg phospholipids is provided at least on page 28, first paragraph.

Due to the concerns, the claims were previously amended to exclude EPG and egg phospholipids from the scope of the claimed subject matter.

In light of *Johnson* and the above, Applicants respectfully submit that there is adequate basis for the negative provisos in claims 21, 32, 41 and 42 such that no new matter exists. Applicants request that this rejection be withdrawn.

Claim 30 (now claim 42) was rejected under 35 U.S.C. § 112, second paragraph as allegedly indefinite. As noted above, claim 30 has been re-presented as new independent claim 42 such that no confusion remains with respect to its former dependency from claim 21. Additionally, claim 42 does not use the “lipid bilayers” language which is believed to obviate any other alleged basis of indefiniteness. Applicants respectfully request that this rejection be withdrawn.

Rejections under 35 U.S.C. § 102

Claims 21, 23-25, 29, 32, 33 and 39 have been rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Madden (USP 5,389,378). Applicants have carefully reviewed the statement of the rejection and the cited prior art and traverse for the following reasons.

As previously noted, Madden fails to teach, suggest or otherwise indicate a composition comprising micelles or the production thereof as now claimed. The term “micelle” or variations thereof, is not even used in the Madden patent.

Additionally, Madden does not teach, suggest, or otherwise use a “high energy process” as noted in the instant application on page 6, first paragraph, which was unexpectedly found to produce micelles containing hydrophobic compounds such as the claimed photosensitizers. As noted in the paragraph bridging pages 42 and 43 of the instant application, extrusion does not produce micelles as claimed. Therefore, Madden, which only discloses the use of extrusion, could not have produced a micelle containing composition as encompassed by the claims.

The statement of the rejection points to Wan (USP 5,329,029) as disclosing that phospholipids are capable of forming micelles and bilayers (Wan at col. 2, lines 3-5). Without commenting on the accuracy of this contention, Applicants respectfully note that Wan provides no information as to the ability to form micelles that contain a photosensitizer as encompassed by the instant claims. In fact, Wan at col. 2, lines 5-8 only discusses the ability of liposomes to encapsulate drugs. There is silence on the ability of micelles to do the same.

The above is particularly applicable to claims 32 and 33, which require an act of producing micelles which is simply not available in Madden, alone or in light of Wan.

In light of the above, there is simply no evidence that Madden discloses the preparation of a composition comprising micelles and a photosensitizer as claimed. With respect to the assertion that the claims utilize the open “comprising” transition phrase, Applicants respectfully point out that while the instant claims may indeed contain some liposomes in the claimed compositions comprising micelles, the burden is upon the Examiner to show that Madden discloses micelles in

their compositions comprising liposomes. In the absence of such a showing, no case of anticipation exists, and withdrawal of the instant rejection is respectfully requested.

Claims 21, 23-24, 27-29, 32, 33, 35, 36, and 39 have been rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Liu (USP 5,707,608) or Desai et al. (USP 6,074,666). Applicants have carefully reviewed the statement of the rejection and the cited prior art and traverse for the following reasons, which address each reference in turn.

As with Madden above, Liu fails to teach, suggest or otherwise indicate a composition comprising micelles or the production thereof as now recited in claims 21 and 32. The term “micelle” or variations thereof, are not even used in the Liu patent except in a single instance referring to how certain photosensitizers are *not soluble* in micellar solutions (see column 7, lines 32-39). Liu’s teachings are directed to liposomes and their production rather than to micelles.

Moreover, a review of Liu reveals that their disclosure is based upon the use of egg phosphatidyl glycerol (EPG). See for example col. 4, lines 29-34, and col. 7, lines 43-53. Because the scope of the pending claims was previously amended to excluded EPG for reasons related to commercial embodiments of the invention, it is not possible for Liu to anticipate the claims.

With respect to Desai et al., Applicants also note that like Madden, Desai et al. fail to use the term “micelle” or variations thereof. This follows because the disclosure by Desai et al. relates to liposomes and their production rather than micelles. Also, and as in the case of Madden, Desai et al. fails to disclose any “high energy process” to produce micelles. Therefore, and as with Madden, there is simply no evidence that Desai et al. disclose the preparation of a composition comprising micelles and a photosensitizer as claimed.

The application of Wan and the comment concerning the use of “comprising” have been addressed above with respect to Madden. Briefly, Wan provides no information concerning the ability to use micelles to encapsulate a photosensitizer, and the use of “comprising” in the instant

claims does not remove the burden by the Office to show that Desai et al. actually disclose the production of micelle containing compositions.

Rejections under 35 U.S.C. § 103

Claims 21, 23-36, 39 and 41 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Madden or Liu or Desai et al. (all as cited above) by themselves or further in view of Young et al. (USP 6,375,930) and Wan (as cited above). Applicants have carefully reviewed the statement of the rejection as well as the cited references respectfully traverse as follows.

The instant rejection acknowledges that Madden, Liu and Desai et al. fail to disclose the production of compositions comprising micelles. But then the statement of the rejection asserts that the references teach the use of high energy processing without pointing to where this is disclosed. The statement then asserts that Young et al. teach the use of micelles to deliver photosensitizers in photodynamic therapy.

Applicants respectfully point out that the disclosure of Young et al. is limited to the use of texaphyrins, which are distinct from the hydro-monobenzo-porphyrin photosensitizers as encompassed by the present claims. Where is the expectation that the teachings of Young et al. are applicable to the instant photosensitizers? Moreover, and despite the discussion of micelles in Young et al., they only describe their preparation in the context of texaphyrins conjugated to lipophilic molecules (see col. 11, lines 49-56). The instant claims, however, do not require the use of photosensitizers conjugated to lipophilic molecules.

Therefore, how does a combination of Young et al. with the other references, alone or in combination, lead to the expectation of compositions comprising micelles as encompassed by the instant claims? Applicants respectfully submit that there is none.

As for Wan, Applicants again note that they provide no teaching, suggestion or indication that micelles containing the claimed photosensitizers are possible. Therefore, they do not rectify the deficiencies of Madden or Liu or Desai et al. or Young et al.

Last, Applicants are confused by the reference to Lentini in the statement of the instant rejection.

In light of the above, Applicants respectfully submit that no case of obviousness exists and that this rejection may be properly withdrawn.

Claims 21, 23-36, 39 and 41 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over either Lentini (5,885,557) or Young et al. (as cited above) in view of either Desai et al. or Madden (both as cited above). Applicants have carefully reviewed the statement of the rejection as well as the cited references respectfully traverse as follows.

As an initial matter, the statement of the rejection refers to Wan, which is not included at the start of the rejection. The statement also does not discuss either Desai or Madden in combination with either Lentini or Young et al. Therefore, Applicants believe that no prima facie case of obviousness has actually been presented.

Moreover, and contrary to the statement of the rejection, Lentini only uses the term “micelle” once at col. 8, line 2, in the context of psoralen or a psoralen-based compound (see col. 7, lines 62-67). No methods to produce such micelles are disclosed or suggested by Lentini. Therefore, and as in the case of Young et al. discussed above, the teachings of Lentini are distinct from the instant claims, which relate to hydro-monobenzo-porphyrin photosensitizers. Where is the expectation that the teachings of Lentini can be properly combined with that of either Desai et al. or Madden? Applicants respectfully submit that there is no such expectation present.

As for Young et al., the failure of its combination with either Desai et al. or Madden has been discussed above.

In light of the above, no combination of the cited references can lead to the claimed invention in the absence of the disclosure provided by the instant application. Therefore, no case of obviousness exists, and this rejection may be properly withdrawn.

In view of the above, claims 21, 23-29, 31-36, 39, 41 and 42 are believed to be in condition for allowance and early indication to this effect is urged.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicant petitions for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 273012011300.

Dated: May 28, 2003

Respectfully submitted,

By 

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Court of Customs and Patent Appeals*In re Johnson and Farnham*

No. 76-643 Decided June 16, 1977

PATENTS**1. Claims — Indefinite — In general (§20.551)****Construction of specification and claims — By prior art (§22.20)**

Analysis of 35 U.S.C. 112 second paragraph rejection should begin with determination of whether claims satisfy requirements of second paragraph; first inquiry, therefore, is to determine whether claims set out and circumscribe particular area with reasonable degree of precision and particularity; it is here where definiteness of language employed must be analyzed, not in vacuum, but always in light of teachings of prior art and of particular application disclosure as it would be interpreted by one possessing ordinary level of skill in pertinent art.

2. Claims — Indefinite — In general (§20.551)**Claims — Specification must support (§20.85)**

Undue breadth of claims is not indefiniteness.

3. Construction of specification and claims — By specification and drawings — In general (§22.251)

Claim language must be read in light of specification as it would be interpreted by one of ordinary skill in art.

4. Claims — Indefinite — In general (§20.551)**Claims — Specification must support (§20.85)****Pleading and practice in Patent Office — Rejections (§54.7)****Specification — Sufficiency of disclosure (§62.7)**

Examiner's rejection premised on general ground that claims are "broader than the express limitation disclosed as defining the invention" and specific grounds that "express disclosure is clearly limited to the sigma value recited in claim 1," raises lack of enablement issue properly arising under first not second paragraph of Section 112.

5. Specification — In general (§62.1)**Specification — Claims as disclosure (§62.3)**

It is function of specification, not claims, to set forth "practical limits of operation" of invention; one does not look to claims to find out how to practice invention they define, but to specification.

6. Claims — Specification must support (§20.85)**Construction of specification and claims — In general (§22.01)****Specification — Sufficiency of disclosure (§62.7)**

Specification as whole must be considered in determining whether scope of enablement provided by specification is commensurate with scope of claims.

7. Construction of specification and claims — Broad or narrow — In general (§22.101)**Patent grant — Intent of patent laws (§50.15)****Specification — Sufficiency of disclosure (§62.7)**

Claims must adequately protect inventors to provide effective incentives; to demand that first to disclose shall limit his claims to what he has found will work or to materials that meet guidelines specified for "preferred" materials in involved process would not serve constitutional purpose of promoting progress in useful arts.

8. Applications for patent — Continuing (§15.3)

Applicants are entitled to benefit of filing date of parent application that discloses invention of application in manner provided by Section 112, paragraph 1.

9. Claims — Broad or narrow — In general (§20.201)**Estoppel — Involving interference (§35.20)**

It is for inventor to decide what bounds of protection he will seek; it is applicant's right to retreat to otherwise patentable species merely because he erroneously thought he was first with genus when he filed.

10. Specification — Sufficiency of disclosure (§62.7)

Notion that one who fully discloses, and teaches those skilled in art how to make and

use genus and numerous species has failed to disclose and teach those skilled in art how to make and use genus minus two species and has thus failed to satisfy Section 112 first paragraph requirement results from hypertechnical application of legalistic prose relating to that provision of statute.

11. Pleading and practice in Patent Office — In general (§54.1)

Specification — Sufficiency of disclosure (§62.7)

While insufficiency under 35 U.S.C. 112 cannot be cured by citing causes for insufficiency, it is not true that factual context out of which question under Section 112 arises is immaterial; specification having described whole invention necessarily described part remaining after invention of another was excised.

Particular patents — Polyarylene Polyethers

Johnson and Farnham, Polyarylene Polyethers, rejection of claims 1-9, 64, and 68-72 reversed.

Appeal from Patent and Trademark Office Board of Appeals.

Application for patent of Robert N. Johnson and Alford G. Farnham, Serial No. 230,091, filed Feb. 28, 1972, continuation-in-part of application Serial No. 295,519, filed July 16, 1963. From decision rejecting claims 1-9, 64, and 68-72, applicants appeal. Reversed; Lane, Judge, dissenting in part with opinion.

Robert C. Brown and Aldo J. Cozzi, both of New York, N.Y. (James C. Arvantes, New York, N.Y., of counsel) for appellants.

Joseph F. Nakamura (Henry W. Tarring, II, of counsel) for Commissioner of Patents and Trademarks.

Before Markey, Chief Judge, and Rich, Baldwin, Lane, and Miller, Associate Judges.

Markey, Chief Judge.

This appeal is from the decision of the Patent and Trademark Office (PTO) Board of Appeals affirming the rejection under 35 USC 102 or 103 (the rejection also raises a written description issue under 35 USC 112, first paragraph) of claims 1-9, 64, and 68-70 and the rejection under 35 USC 112, first paragraph (enablement), and second paragraph (indefiniteness), of claims 64 and

68-72 in appellants' application No. 230,091 filed February 28, 1972 (the 1972 application) for "Polyarylene Polyethers." The 1972 application is a continuation-in-part of three earlier applications, the earliest being application No. 295,519 filed July 16, 1963 (the 1963 application). We reverse.

The Invention

The invention is in the field of polymer chemistry and more specifically relates to linear thermoplastic polyarylene polyether polymers composed of recurring units having the general formula —O—E—O—E'— where O represents an oxygen atom,² E represents the residuum of a dihydric phenol³ compound, and E' represents the residuum of a benzenoid compound having one or more inert electron withdrawing groups⁴ in the ortho⁵ or para⁶ positions to the valence bonds and where both E and E' are bonded to the ether oxygens through aromatic carbon atoms.

Appellants describe a method of synthesizing these polymers by reacting a double alkali metal salt of a dihydric phenol with a dihalobenzenoid compound in the presence of certain solvents under substantially anhydrous reaction conditions.

The 1972 application includes the following disclosure with respect to the electron withdrawing group found in E' and in the E' precursor compound, that is, in the compound which is the predecessor of E' in the above general formula (we have designated paragraphs [A] and [B] and have added emphasis thereto):

Any electron withdrawing group can be employed as the activator group in these compounds. It should be, of course, inert to the reaction, but otherwise its structure is not critical. Preferred are the strong activating groups such as the sulfone group

¹ Claims 10-54 and 65-67 stand allowed. A petition for reconsideration was denied by the board.

² The -O- linkages in the general formula are called ether linkages.

³ A dihydric phenol is a type of aromatic organic compound in which two hydroxy (-OH) groups are attached directly to a benzene ring.

⁴ An electron withdrawing group is a substituent which withdraws electrons from the aromatic ring to which it is attached.

⁵ An aromatic ring bearing substituents on adjacent carbon atoms is called ortho substituted.

⁶ An aromatic ring bearing substituents on opposite carbon atoms is called para substituted.

O
11
(-S-) bonding two halogen substituted

11
O
benzenoid nuclei as in the 4,4'-dichlorodiphenyl sulfone and 4,4'-difluorodiphenyl sulfone, although such other strong withdrawing groups hereinafter mentioned can also be used with equal ease.

The more powerful of the electron withdrawing groups give the fastest reactions and hence are preferred. It is further preferred that the ring contain no electron supplying groups on the same benzenoid nucleus as the halogen; however, the presence of other groups on the nucleus or in the residuum of the compound can be tolerated. Preferably, all of the substituents on the benzenoid nucleus are either hydrogen (zero electron withdrawing), or other groups having a positive sigma* value, as set forth in J.F. Bunnett in Chem. Rev. 49 273 (1951) and Quart. Rev., 12, 1 (1958). See also Taft, Steric Effects in Organic Chemistry, John Wiley & Sons (1956), chapter 13; Chem. Rev., 53, 222; JACS, 74, 3120; and JACS, 75, 4231.⁷

The electron withdrawing group of the dihalobenzenoid compound can function either through the resonance of the aromatic ring, as indicated by those groups having a high sigma* value, i.e., above about +0.7 or by induction as in perfluoro compounds and like electron sinks.

[A]

Preferably the activating group should have a high sigma value, preferably above 1.0, although sufficient activity to promote the reaction is evidenced in those groups having a sigma value above 0.7, although the reaction rate with*

⁷ Appellants' brief specifically refers to one of the publications cited (Chem. Rev., 53, 222 [1953]) and states that its author (Jaffe) defines the sigma* value as a "special substituent constant" for the "Hammett equation" which is an empirically derived formula intended to show a general quantitative relation between the nature of a given substituent and the reactivity of a side chain. Thus, sigma* values are based on experimental data and they measure the "activation energy" of a given substituent (electron withdrawing group).

such a low powered electron withdrawing group may be somewhat low.

The activating group can be basically either of two types:

(a) monovalent groups that activate one or more halogens on the same ring as a nitro group, phenylsulfone, or alkylsulfone, cyano, trifluoromethyl, nitroso, and hetero nitrogen as in pyridine.

(b) divalent group [sic] which can activate displacement of halogens on two different rings, such as the sulfone

group $\begin{array}{c} \text{O} \\ \parallel \\ -\text{S}- \\ \parallel \\ \text{O} \end{array}$; the carbonyl group $\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}- \end{array}$; the

vinyl group $\begin{array}{c} \text{H} \\ | \\ -\text{C}=\text{C}- \\ | \\ \text{H} \end{array}$; the sulfoxide group

$\begin{array}{c} \text{O} \\ \parallel \\ -\text{S}- \end{array}$; the azo group $-\text{N}=\text{N}-$; the saturated

fluorocarbon groups $-\text{CF}_2\text{CF}_2-$; organic

phosphine oxides $\begin{array}{c} \text{O} \\ \parallel \\ -\text{P}- \\ \parallel \\ \text{R} \end{array}$; where R is

a hydrocarbon group, and the ethylidene

$\text{X}-\text{C}-\text{X}$
group $\begin{array}{c} \text{H} \\ | \\ -\text{C}- \end{array}$ where X can be hydrogen or halogen or which can activate halogens on the same ring such as with difluorobenzoquinone, 1,4- or 1,5- or 1,8-difluoroanthraquinone.

[B]

Those skilled in the art will understand that a plurality of electron withdrawing groups may be employed if desired, including electron withdrawing groups having a sigma value below about +0.7 provided the cumulative sigma* influence on each of the reactive halogen groups of the halobenzenoid compound is at least about +0.7.*

The Disclosure and Prosecution History of the 1963 Application

To understand the written description issue in this appeal, it is necessary to summarize the disclosure and prosecution history of the 1963 application. The 1963 application described (and claimed) in haec verba a genus of polymers as defined by the above general formula. That application stated:

The high molecular weight polyarylene polyethers of the present invention are the linear thermoplastic reaction products of an alkali metal double salt of a dihydric phenol and a dihalobenzenoid compound. Characteristically, this polymer has a basic structure composed of recurring units having the formula



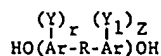
wherein E is the residuum of the dihydric phenol and E' is the residuum of the benzenoid compound, both of which are valently bonded to the ether oxygen through aromatic carbon atoms, as hereinafter more fully discussed. Polymers of this type exhibit excellent strength and toughness properties as well as outstanding thermal, oxidative and chemical stability.

The 1963 application then discussed the identity of E and the E precursor compound, that is, the compound which is the predecessor of E in the general formula. It stated:

The residuum E of the dihydric phenol of these alkali metal salts is not narrowly critical. It can be, for instance, a mononuclear phenylene group as results from hydroquinone and resorcinol, or it may be a di- or polynuclear residuum. Likewise it is possible that the residuum be substituted with other inert nuclear substituents such as halogen, alkyl, alkoxy and like inert substituents.

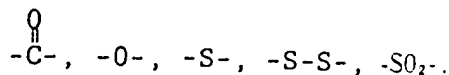
* * *

Such dinuclear phenols can be characterized as having the structure:



wherein Ar is an aromatic group and preferably is a phenylene group, Y and Y' can be the same or different inert substituent groups as alkyl groups having from 1 to 4 carbon atoms, halogen atoms, i.e. fluorine, chlorine, bromine or iodine,

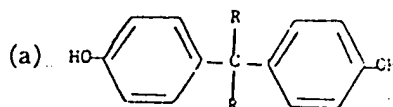
or alkoxy radicals having from 1 to 4 carbon atoms, r and z are integers having a value from 0 to 4, inclusive, and R is representative of a bond between aromatic carbon atoms as in dihydroxydiphenyl, or is a divalent radical, including for example, inorganic radicals as



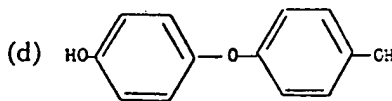
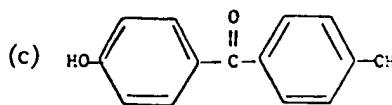
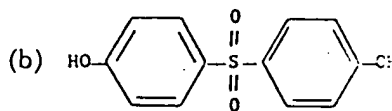
and divalent organic hydrocarbon radicals such as alkylene, alkylidene, cycloaliphatic, or the halogen, alkyl, aryl or like substituted alkylene, alkylidene and cycloaliphatic radicals as well as alkalicyclic, alkarylene and aromatic radicals and a ring fused to both Ar group[s].

The application then mentioned by name some fifty specific dihydric dinuclear phenol (bisphenol) compounds which could be the E precursor compound. The application further stated:

A preferred form of the polyarylene polyethers of this invention are those prepared using the dihydric polynuclear phenols of the following four types, including the derivatives thereof which are substituted with inert substituent groups



in which the R group represents hydrogen, lower alkyl, lower aryl and the halogen substituted groups thereof, which can be the same or different.



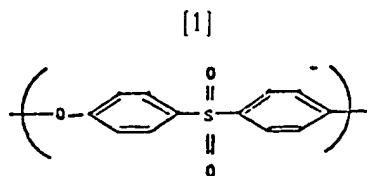
Turning to the identity of the E' precursor compound, the application stated:

Any dihalobenzenoid compound or mixture of dihalobenzenoid compounds

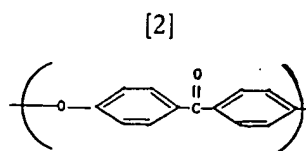
can be employed in this invention which compound or compounds has the two halogens bonded to benzene rings having an electron withdrawing group in at least one of the positions ortho and para to the halogen group. The dihalobenzenoid compound can be either mononuclear where the halogens are attached to the same benzenoid ring or polynuclear where they are attached to different benzenoid rings, as long as there is the activating electron withdrawing group in the ortho or para position of that benzenoid nucleus.

The 1963 application also included a discussion of the electron withdrawing group that was substantially the same as the paragraphs quoted above from the 1972 application.

The 1963 application contained twenty-six "examples" disclosing in detail the physical and chemical characteristics of fifteen species of polyarylene polyethers. One of the species was the polymer composed of these recurring structural units (which we designate as species [1]):⁸



Another species disclosed was the polymer composed of these recurring structural units (which we designate as species [2]):⁹



Appellants' 1963 application became involved in a three-party interference¹⁰ which resulted in an award of priority adverse to appellants from which they did not appeal.¹¹ The sole count of the interference recited species [1].

⁸ The -SO₂- linking group in species [1] is called a sulfone group.

⁹ The -CO- linking group in species [2] is called a carbonyl group.

¹⁰ Interference No. 95,807, declared February 17, 1967.

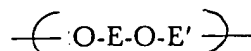
¹¹ Another party did appeal. See Vogel v. Jones, 486 F.2d 1068, 179 USPQ 425 (CCPA 1973).

After their involvement in the interference ended, appellants filed the 1972 application, and they sought broad claims which would at the same time exclude the subject matter of the lost count.

The Claims

Claim 1, now on appeal, is illustrative of the group of claims (claims 1-9, 64, and 68-70) which seek to exclude the subject matter of the lost count and which are involved in the 35 USC 102 or 103 rejection:

1. A substantially linear thermoplastic polyarylene polyether composed of recurring units having the general formula:

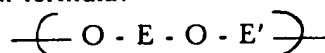


where E is the residuum of a dihydric phenol and E' is the residuum of a benzenoid compound having an inert electron withdrawing group in one or more of the positions ortho and para to the valence bonds having a sigma* value above about +0.7, and where both of said residuum [sic, residual] are valently bonded to the ether oxygens through aromatic carbon atoms *with the provisos that E and E' may not both include a divalent sulfone group and may not both include a divalent carbonyl group linking two aromatic nuclei.* [Emphasis added.]

The first "proviso" in claim 1, that "E and E' may not both include a divalent sulfone group," excludes species [1], the species of the lost count. The second "proviso," that "E and E' * * * may not both include a divalent carbonyl group," excludes species [2], which appellants state is "analogous" or "equivalent" to species [1].¹²

Claims 64 and 71 are illustrative of the group of claims (claims 64 and 68-72) rejected under 35 USC 112, first and second paragraphs:

64. A substantially linear thermoplastic polyarylene polyether composed of recurring units having the general formula:

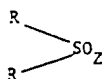


where E is the residuum of a dihydric phenol and E' is the residuum of a

¹² The provisos actually exclude more than species [1] and [2]. For example, polymers similar to species [1] and [2] but having substituted ring structures are also excluded.

benzenoid compound having one or more inert electron withdrawing groups in at least one of the position [sic, positions] ortho and para to the valence bonds having a sigma* value *sufficient to activate a halogen atom* and where both of said residuum [sic, residua] are valently bonded to the ether oxygens through aromatic carbon atoms with the provisos that E and E' may not both include a divalent carbonyl group linking two aromatic nuclei. [Emphasis added.]

71. The process for preparing substantially linear polyarylene polyethers which comprises reacting substantially equimolar amounts of an alkali metal double salt of a dihydric phenol with a dihalobenzenoid compound *having halogen atoms activated by an inert electron withdrawing group* in at least one of the positions ortho and para to the halogen atom, under substantially anhydrous conditions and in the liquid phase of an organic solvent having the formula:



in which R represents a member of the group consisting of monovalent lower hydrocarbon groups free of aliphatic unsaturation on the alpha carbon atom and, when connected together represents a divalent alkylene group, and Z is an integer from 1 to 2 inclusive. [Emphasis added.]

The Rejections

The sole reference relied upon by the examiner and the board is:

Netherlands 6,408,130 January 18, 1965

Claims 1-9, 64, and 68-70 were rejected under 35 USC 102 or 103 as unpatentable in view of the Netherlands patent, which is a foreign-filed counterpart of appellants' 1963 application.

Before the PTO, appellants conceded that the invention was fully disclosed in the Netherlands patent. However, appellants contended that the claims are entitled to the benefit of the 1963 filing date under 35 USC 120,¹³ and therefore the Netherlands patent is not available as a prior art reference.

¹³ §120. Benefit of earlier filing date in the United States.

The examiner and the board were of the view that the claims are not entitled to the 1963 filing date because the presently claimed subject matter is not "described" in the 1963 application as required by the first paragraph of 35 USC 112.¹⁴ As explained by the board:

The question determinative of the issue at hand is thus whether or not appellants are entitled to the filing date of their parent application Serial No. 295,519, i.e., July 16, 1963. An answer to this question quite obviously depends on what is the invention defined by the instant claims. Is it the same as the one disclosed in [the] parent case or does it differ therefrom in a manner which precludes the instant claims from being afforded the filing date of the parent case?

Under the rationale of the CCPA as set forth in *In re Welstead*, 59 CCPA 1105, 463 F.2d 1110, 174 USPQ 449 (compare also *In re Lukach et al.*, 58 CCPA 1233, 442 F.2d 967, 169 USPQ 795, and *In re Smith [(I)]*, 59 CCPA 1025, 458 F.2d 1389, 173 USPQ 679), which we deem controlling, we are constrained to conclude that the present claims are not entitled to the filing date of appellants' parent case Serial No. 295,519. The claims at issue contain provisos that E and E' may not both include a divalent sulfone group and may not both include a divalent carbonyl group linking two aromatic nuclei. The artificial subgenus thus created in the claims is not described in the parent case and would be new matter if introduced into the parent case. It is thus equally "new matter," i.e., matter new to the present application for

An application for patent for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in an application previously filed in the United States by the same inventor shall have the same effect, as to such invention, as though filed on the date of the prior application, if filed before the patenting or abandonment of or termination of proceedings on the first application or on an application similarly entitled to the benefit of the filing date of the first application and if it contains or is amended to contain a specific reference to the earlier filed application. [Emphasis added.]

¹⁴ §112. Specification.

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention. [Emphasis added.]

which no antecedent basis exists in the parent case. Consequently, appellants are not entitled to rely on the filing date of their parent case to support a new subgenus for which no basis exists in the parent case. The reason why appellants now limit their claims to exclude those species eliminated by the provisos, i.e., loss in an interference, is manifestly immaterial.

Having reached the conclusion that appellants are not entitled to the filing date of their parent case for the subject matter defined by the present claims which delineate a new subgenus not described in the parent case, it follows that the Netherlands patent is a valid reference which, by appellants' own admission, fully meets the claims. The indicated rejection of claims 1-9, 64 and 68-70 under 35 U.S.C. 102 as unpatentable over the Netherlands patent is thus affirmed. The alternative reliance by the Examiner on Section 103 is inconsequential, Section 102 of the statute being the epitome of Section 103. In re Pearson, (CCPA), 494 F.2d 1399, 181 USPQ 641.

Claims 64 and 68-72 were rejected under 35 USC 112, first and second paragraphs. In his Answer, the examiner stated that the claims were rejected under §112, first paragraph, for "being broader than the enabling disclosure" and under §112, second paragraph, for being "broader than the express limitations disclosed as defining the invention." The examiner said the "specific deficiencies of the claims and disclosure" are that: the expression "to activate a halogen" (claim 64) is "indefinite" because "it does not specify toward what the activation is" and that "[t]he express disclosure is clearly limited to the sigma[*] value recited in claim 1, for example: see [[A] and [B]]."

In affirming the examiner on these rejections, the board stated:

Further, claims 64 and 68-72 stand finally rejected under 35 U.S.C. 112 as being broader than the enabling disclosure (first paragraph) and broader than the express limitations disclosed as defining the invention (paragraph two).

" §112. Specification.

• • •

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

It is the Examiner's position that "to activate a halogen atom" (claim 64) is indefinite and that the disclosure also is limited to dihalobenzenoid compounds not broadly merely "activated by an inert electron withdrawing group" (claims 68-72) but the activation must have a sigma* value above about +0.7.

We agree with this rejection. The specification makes it quite clear that a minimum sigma* activation value of the halogen atoms is required (note especially [[A]]) and an undefined sigma* value thus lacks the requisite preciseness commensurate with the enablement of the disclosure.

Opinion

1. The Rejections of Claims 64 and 68-72 under §112

Claims 64 and 68-72 were rejected under both the first and second paragraphs of 35 USC 112.

[1] We begin with the rejections under the second paragraph of §112. As stated in In re Moore, 58 CCPA 1042, 1046-1047, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (1971):

Any analysis in this regard should begin with the determination of whether the claims satisfy the requirements of the second paragraph. * * *

This first inquiry therefore is merely to determine whether the claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity. It is here where the definiteness of the language employed must be analyzed — not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. [Footnote omitted.]

The examiner's §112, second paragraph, rejection was premised on the general ground that the claims are "broader than the express limitations disclosed as defining the invention" and on two specific grounds: (a) that the expression "to activate a halogen atom" is "indefinite" because "it does not specify toward what the activation is;" and (b) that "[t]he express disclosure is clearly limited to the sigma[*] value recited in claim 1, for example: see [[A] and [B]]." The board affirmed and stated: "an undefined sigma* value thus lacks the requisite preciseness * * *." (Emphasis added.)

Ground (a) focuses on the specific phrase "to activate a halogen atom." But the language is found only in claim 64, not in claims 68-72. Claim 68 recites "a dihalobenzenoid compound having halogen atoms activated by an inert electron withdrawing group," and claims 71 and 72 have a similar recitation. (Claims 69 and 70 depend from claim 68.) Those recitations clearly specify "toward what the activation is," as the examiner would require. Ground (a), therefore, lacks merit with respect to claims 68-72.

[2] Product claim 64¹⁶ defines the complete polymer structure by describing the constituents partially in terms of their functions in the reaction and by their linkage into the end-product polymer. The specification provides further guidance on the meaning of the E' term:

It is seen also that as used herein, the E' term defined as being the "residuum of the benzenoid compound" refers to the aromatic or benzenoid residue of the compound *after the removal of the halogen atoms on the benzenoid nucleus.* [Emphasis added.]

It is also clear from the specification as a whole, that two keys to the polymerization reaction are inert electron withdrawing groups particularly positioned on the benzenoid nucleus and a cumulative sigma* value attributable to those withdrawing groups which is sufficient to activate a halogen atom on that nucleus. If the sigma* value is not sufficient to activate a halogen atom on the benzenoid nucleus, the reaction will not take place and the polymer will not be made. See *In re Angstadt*, 537 F.2d 498, 190 USPQ 214 (CCPA 1976). The specification adequately details which sigma* values are sufficient to carry out the reaction, and any person skilled in the art would immediately recognize from the above-quoted portion of the disclosure or the specification as a whole that the halogen atom mentioned in claim 64 was on the benzenoid nucleus prior to the reaction. It is clear that those skilled in the art would have no trouble ascertaining whether any particular polymer falls within the scope of claim 64. See *In re Goffe*, 526 F.2d 1393, 188 USPQ 131 (CCPA 1975). The questioned limitation is merely surplusage, since the claim would be definite with or without it.¹⁷

¹⁶ Claims 68-70 are product-by-process claims.

¹⁷ We do not speculate on whether or not the claim would be unduly broad if the questioned limitation were removed. But undue breadth is not indefiniteness. *In re Borkowski*, 57 CCPA

[3] The point made by the board, that "an undefined sigma* value" lacks "preciseness," is also unsound.¹⁸ Claim language must be read in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Moore*, supra. As pointed out above, those skilled in the art will be able to determine immediately from appellants' detailed specification what level of activation (i.e., sigma* value) is necessary to practice the invention. Cf. *In re Mattison*, 509 F.2d 563, 184 USPQ 484 (CCPA 1975). We conclude that the subject matter embraced by claims 64 and 68-72 is definite and that the claims set out and circumscribe a particular area with a reasonable degree of precision and particularity. *In re Angstadt*, supra; *In re Skoll*, 523 F.2d 1392, 187 USPQ 481 (CCPA 1975); *In re Watson*, 517 F.2d 465, 186 USPQ 11 (CCPA 1975); *In re Moore*, supra. Therefore, the rejection of claims 64 and 68-72 under the second paragraph of 35 USC 112 is reversed.

[4] The examiner's general ground and his ground (b) raise a lack of enablement issue properly arising under the first, not the second, paragraph of §112. Ground (b) simply supplies the examiner's reasoning in support of the rejection of the claims under §112, first paragraph, as "broader than the enabling disclosure."

As appellants state, the crux of this lack of enablement rejection is that although the specification describes how the halogen atoms bonded to the dihalobenzenoid compound (the E' precursor compound) must be activated in order for polymerization to occur, the claims at issue do not recite a numerical definition of the degree of activation (a minimum sigma* value) required from the electron withdrawing group. The PTO position is that the claims must recite a minimum sigma* value in order to conform the scope of the claims to the scope of enablement provided by the specification. The PTO relies on statements [A] and [B] to prove that the scope of enablement

946, 422 F.2d 904, 164 USPQ 642 (1970). This claim is definite either with or without the phrase "to activate a halogen atom."

¹⁸ *In re Merat*, 519 F.2d 1390, 186 USPQ 471 (CCPA 1975), cited by the Solicitor, affirmed a §112, second paragraph, rejection because the same word ("normal") was used in the claims in one sense and in the specification in a different sense, thus rendering the claims indefinite. There is nothing akin to the Merat situation here.

provided by the specification is not commensurate with the scope of the claims.

[5] First, we note that it is the function of the specification, not the claims, to set forth the "practical limits of operation" of an invention. In re Rainer, 49 CCPA 1243, 1248, 305 F.2d 505, 509, 134 USPQ 343, 346 (1962). One does not look to claims to find out how to practice the invention they define, but to the specification. In re Roberts, 470 F.2d 1399, 1403, 176 USPQ 313, 315 (CCPA 1973); In re Fuetterer, 50 CCPA 1453, 319 F.2d 259, 138 USPQ 217 (1963).

[6] Second, we note that the specification as a whole must be considered in determining whether the scope of enablement provided by the specification is commensurate with the scope of the claims. In re Moore, supra at 1047, 439 F.2d at 1235, 169 USPQ at 238-39.

The present specification includes broad statements such as: "Any electron withdrawing group can be employed as the activator group in these compounds." The specification also discusses preferred embodiments, alternative embodiments, and the practical limits of operation.

Statement [A] describes preferred embodiments and practical limits of operation. It says that electron withdrawing groups having a high sigma* value ("preferably above 1.0") are preferred and that the practical limit of operation of the polymerization reaction is reached when the electron withdrawing group has a sigma* value of 0.7 (at that value the reaction rate "may be somewhat low").

Statement [B] describes an alternative embodiment ("a plurality of electron withdrawing groups") and the practical limit of operation for this embodiment. It states that the cumulative sigma* influence should be "at least about +0.7."

[7] The PTO would limit appellants to claims reciting a sigma* value of at least 0.7. This view is improper because it requires the claims to set forth the practical limits of operation for the invention and it effectively ignores the scope of enablement provided by the specification as a whole. As we said in In re Goffe, 542 F.2d 564, 567, 191 USPQ 429, 431 (CCPA 1976):

[T]o provide effective incentives, claims must adequately protect inventors. To demand that the first to disclose shall limit his claims to what he has found will work or to materials which meet the guidelines specified for "preferred" materials in a

process such as the one herein involved would not serve the constitutional purpose of promoting progress in the useful arts. See In re Fuetterer, 50 CCPA 1453, 1462, 319 F.2d 259, 265, 138 USPQ 217, 223 (1963). [Footnote omitted.]

The rejection of claims 64 and 68-72 under the first paragraph of 35 USC 112 is reversed.

II. The Rejection of Claims 1-9, 64, and 68-70 Under §102 or §103, Raising Issues Under §112 and §120

[8] We are convinced that the invention recited in claim 1 is "disclosed in the manner provided by the first paragraph of section 112" in the 1963 application and that claim 1 is therefore entitled to the benefit of the 1963 filing date.¹⁹ The only inquiry is whether, after exclusion from the original claims of two species specifically disclosed in the 1963 application, the 1963 disclosure satisfies §112, first paragraph, for the "limited genus"²⁰ now claimed.

While the board found that "no antecedent basis exists in the parent case" for the "limited genus" in claim 1, we see more than ample basis for claims of such scope. The 1963 disclosure is clearly directed to polymers of the type claimed. Fifty specific choices are mentioned for the E precursor compound, a broad class is identified as embracing suitable choices for the E' precursor compound, and twenty-six "examples" are disclosed which detail fifteen species of polyarylene polyethers. Only fourteen of those species and twenty-three of the "examples" are within the scope of the claims now on appeal. Two of the many choices for E and E' precursor compounds are deleted from the protection sought, because appellant is claiming less than the full scope of his disclosure. But, as we said in In re Wertheim, 541 F.2d 257, 263, 191 USPQ 90, 97 (CCPA 1976):

Inventions are constantly made which turn out not to be patentable, and applicants frequently discover during the course of prosecution that only a part of what they invented and originally claimed is patentable.

¹⁹ Appellants have not argued the claims separately, thus, claims 2-9, 64, and 68-70 stand or fall with claim 1.

²⁰ Appellants refer to the subject matter recited in claim 1 as a "limited genus." The board called it an "artificial subgenus." We use appellants' terminology. Whatever the label, the issue is the same.

[9] It is for the inventor to decide what *bounds* of protection he will seek. In re Saunders, 58 CCPA 1316, 1327, 444 F.2d 599, 607, 170 USPQ 213, 220 (1971). To deny appellants the benefit of their grandparent application in this case would, as this court said in Saunders:

* * * let form triumph over substance, substantially eliminating the right of an applicant to retreat to an otherwise patentable species merely because he erroneously thought he was first with the genus when he filed.

The board cited as "controlling" the decisions of this court in In re Welstead, 59 CCPA 1105, 463 F.2d 1110, 174 USPQ 449 (1972); In re Lukach, 58 CCPA 1233, 442 F.2d 967, 169 USPQ 795 (1971); and In re Smith, 59 CCPA 1025, 458 F.2d 1389, 173 USPQ 679 (1972). Those decisions, because of important factual distinctions, are not controlling.

In Welstead the applicant was attempting to introduce into his claims a new subgenus where " * * * the specification * * * contained neither a description * * * of the [subgenus] * * * nor descriptions of the species thereof amounting in the aggregate to the same thing * * *." Welstead conceded the absence from his disclosure of compounds of the "second type" within the new subgenus. Welstead is thus clearly distinguishable from the present case, in which appellants' grandparent application contains a broad and complete generic disclosure, coupled with extensive examples fully supportive of the limited genus now claimed. Indeed, Welstead might have well been cited by the board in support of a decision contrary to that reached, in view of what this court there implied concerning the possibility that "descriptions of species amounting in the aggregate to the same thing" may satisfy the description requirements of 35 USC 112, paragraph one.

Similarly, in Lukach we noted that " * * * the grandparent application here does not disclose any defined genus of which the presently claimed copolymers are a subgenus." That is not the fact here. Appellants' grandparent application clearly describes the genus and the two special classes of polymer materials excluded therefrom.

In Smith the applicant sought the benefit of his prior application for a broadened generic claim, replacing the claim limitation "at least 12 carbon atoms * * *" with a new limitation calling specifically for 8 to 36 carbon atoms, where there was no dis-

closure of either the range itself or of a sufficient number of species to establish entitlement to the claimed range. Appellants, in contrast to the applicant in Smith, are narrowing their claims, and the full scope of the limited genus now claimed is supported in appellants' earlier application, generically and by specific examples.

[10] The notion that one who fully discloses, and teaches those skilled in the art how to make and use, a genus and numerous species therewithin, has somehow failed to disclose, and teach those skilled in the art how to make and use, that genus minus two of those species, and has thus failed to satisfy the requirements of §112, first paragraph, appears to result from a hypertechnical application of legalistic prose relating to that provision of the statute. All that happened here is that appellants narrowed their claims to avoid having them read on a lost interference count.

[11] The board indicated that "it is manifestly immaterial" *why* appellants limited their claims. Though it is true that insufficiency under §112 could not be cured by citing the causes for such insufficiency, it is not true that the factual context out of which the question under §112 arises is immaterial. Quite the contrary. Here, as we hold on the facts of this case, the "written description" in the 1963 specification supported the claims in the absence of the limitation, and that specification, having described the whole, necessarily described the part remaining. The facts of the prosecution are properly presented and relied on, under these circumstances, to indicate that appellants are merely excising the invention of another, to which they are not entitled, and are not creating an "artificial subgenus" or claiming "new matter."

In summary, and for the reasons discussed, the rejections of claims 64 and 68-72 under §112, first and second paragraphs, are reversed; appellants' 1963 disclosure satisfied §112, first paragraph, with respect to claims 1-9, 64, and 68-70 and appellants are, therefore, entitled to the benefit of their 1963 filing date under 35 USC 120. The Netherlands patent is thus rendered unavailable as a prior art reference, and the rejection of the claims under 35 USC 102 or 103 is reversed.

Lane, Judge, dissenting in part,

I would affirm the rejection of claims 64 and 68-72 under §112, paragraphs 1 and 2, because the specification indicates that a

minimum sigma value of ± 0.7 is an *essential requisite*. These claims fail to recite this requisite, thus fail to define appellants' invention and are broader than the disclosure. I concur in reversing the rejection of claims 1-9.

U.S. Court of Claims

Finney v. United States

No. 297-72 Decided Apr. 16, 1976

PATENTS

1. Infringement — In general (§39.01)

Single instance of experimentation with patented device by accused infringer is *de minimis*; inventor cannot complain of unauthorized experiment with his invention on modest scale if practical use does not follow.

Particular patents — Interlocking Gloves

3,368,811, Finney, Interlocking Glove and Handle, not infringed.

Petition by Basil B. Finney, against the United States, for compensation for use of an invention. On plaintiff's exception to recommended decision, and request for review, and defendant's motion for judgment. Judgment for defendant.

Adopting 188 USPQ 33; see also 178 USPQ 235 and 183 USPQ 351.

Basil B. Finney, Riverside, Cal., pro se.

Robert H. Plotkin and Carla A. Hills for defendant.

Before Cowen, Chief Judge, and Nichols and Kunzig, Judges.

Per curiam.

Plaintiff, Basil B. Finney, brought this suit under 28 U. S. C. Sec. 1498, to recover reasonable and entire compensation for infringement by National Aeronautics and Space Administration (NASA) of plaintiff's patent No. 3,368,811. Trial Judge Colaianni has filed a recommended decision and con-

clusion of law in accordance with Rule 134(h). The plaintiff has filed pro se his exception and request for review. Upon consideration of this, and of defendant's motion for judgment, but without oral argument, the court agrees with the recommended decision, which has been furnished to the parties, and adopts the same as the basis for its judgment in this case. There was, therefore, no infringement, and the issue of invalidity is not addressed.

[1] The invention teaches a method for constructing an interlocking glove and handle, enabling a secure, nonslip grasp of a handle or control wheel. Velcro, a trademarked material, may be applied to both glove and handle, with numerous hooks protruding from one surface and loops of thread from the other. Plaintiff on a tour of the NASA Center in Houston, Texas, in 1970, saw a gloved mannequin holding an airgun, the glove and gun being treated with Velcro in the patented manner. However, this mannequin was believed to depict a Gemini IV Mission astronaut. The Gemini IV mission was run on June 3-7, of 1965, three years before the patent date, and according to testimony, did not actually employ Velcro. The evidence was specific and overwhelming that, with one exception, NASA made no use of the invention. The exception is that in a single instance NASA designed and built a Modular Equipment Transporter (MET), sort of a glorified wheelbarrow, for use on the moon. It was tried (on earth) with Velcro non-skid material on the handles and on the astronaut's gloves, but this MET was rejected for another design, not using Velcro, that was actually used on the moon. Plaintiff makes much of this single instance, but the trial judge properly rejects it as *de minimis*. *Maxon Premix Burner Co. v. Eclipse Engineering Co.*, 471 F.2d 308, 317, 175 USPQ 324, 330 (7th Cir. 1972), cert. denied, 410 U.S. 929, 176 USPQ 513 (1973). (Manufacture and sale of a single experimental prototype held *de minimis*.) An inventor cannot complain of experiment with his invention of this modest scale, when it is not followed by practical use. Plaintiff believes this experimental MET embodying his invention is still in Government storage somewhere, and so it well may be, but there is nothing to suggest it is stored for actual use, on the moon or elsewhere.

Accordingly, the plaintiff is not entitled to recover and the petition is dismissed.